

Abstract

A hydraulic setting tool for packers capable of mechanically setting the packer and opening a valve in the packer in one trip. The tool comprises an outer sleeve and an inner mandrel coaxially disposed within the outer sleeve and adapted to move axially relative to the outer sleeve. The tool further comprises three locking mechanisms that unlock under different fluid pressure loads. Two of the locking mechanisms lock the inner mandrel to the outer sleeve in a run-in position. Once a sufficient fluid pressure has been reached to unlock both of these locking mechanisms, the inner mandrel moves upward relative to the outer sleeve to set the packer. A spring forces the inner mandrel into a third position relative to the outer sleeve, which is maintained by the third locking mechanism. This third position is used to open the packer valve.